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INTUSSUSCEPTION TREATED BY COLONO-ENTERIC IRRIGATION.*

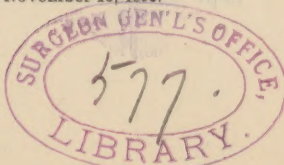
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A criticism of medical writers occasionally met with is that cases, particularly in the line of surgery, are sometimes reported too soon, and statistical results are thereby obtained which are not justified, owing to later developments. In the case here reported I have erred in the opposite extreme by having allowed so many years to elapse since the case was treated. In fact I have often related the experience to medical friends, and as often expressed an intention to some day prepare a paper based thereupon, but until now have always allowed procrastination to thwart the purpose. Additionally the incentive has been somewhat weakened by my drifting away from the practice of general medicine and becoming year by year more and more identified with special work; but meantime, during this lapse of years, I have never failed to read with interest all papers bearing thereupon of which I could learn, and having never found detailed an experience similar to mine causes me to feel it all the more incumbent that I should make the report without further delay.

October 23, 1891, I was summoned to call as soon as possible to see Mary C., aged fourteen, whom I found in bed and suffering much discomfort if not actual pain. The mother, a woman of more than average intelligence and one who had had much experience with sickness, gave me a brief history of the case. The patient's previous health had been good until two weeks before, when she became constipated, and for the last three days there had been no alvine evacuation whatever, notwithstanding the fact that cathartics had been freely given. Rectal enemata of hot water had also been employed, and even a clyster of one pint of sweet oil, but all with negative results. On the preced-

* Read before the Chicago Medical Society, November 16, 1896.



ing day she suddenly began to complain of abdominal tenderness and pain, principally in the left hypochondriac region. She refused food and displayed a tendency to nausea, though no actual vomiting had occurred. By preference she remained in bed. For several days the patient's principal diet had been cheese and crackers, though she had also been eating freely of both grapes and oranges, in each case swallowing the seeds. Furthermore, I learned that she was addicted to the chewing-gum habit, and acknowledged that she had been swallowing some of the gum. She had always practiced the rapid method of eating, with but slight mastication, often described as "bolting the food." The abdomen was distended and somewhat tympanitic, though no distinct tumor could be discerned by palpation. Tenesmus was complained of and the sphincter ani was much reflexed. There had been no fever.

I administered a colonic flushing, using about three quarts of water at a temperature of about 110° F., with the effect of bringing away some orange seeds and several pieces of orange, including a core the size of a butternut. In giving this douche I placed the patient in the knee-chest position over an inverted chair upon the bed. And here let me say that the retaining of this position is both annoying and difficult for the patient unless some such support is given, and nothing is more available and practical than the means described. After the douche the patient experienced less uneasiness at the point of pain. I left an opiate to control the pain should it become worse, and ordered the giving of a very hot bath and a repetition of the colonic flushing after the use of the following saline enema:

R	Magnesia sulph	℥ ij;
	Glycerini	℥ j;
	Aquæ	℥ iv.

S.: Inject at once and retain.

I additionally left two grains of calomel in one-sixth grain tablets, one tablet to be given every half hour, and when all were taken to be followed by a seidlitz powder.

Upon the following evening I again called and found the patient's condition unimproved. The pain had returned and had at times been considerable; no further passage had occurred except about half a cupful of grape seeds; there had also been

slight vomiting. The mother had become quite alarmed, as she fully realized the gravity of the trouble, and favored the making of an abdominal section. I allayed her fears and assured her that I was hopeful of correcting the difficulty by hydrostatic measures. It now seemed plainly apparent to me that I had to deal with a case of intussusception, though there was an absence of some of the more common symptoms. No distinct tumor could be detected, neither was there any passage of blood, the latter being the more rare exception. Hiccough was also absent, but this is a symptom more pronounced after the third day. There had not been present either the characteristic violent colicky pains nor the usual pronounced vomiting.

In his *Essentials of Practice*, Hartshorn,* in treating of intestinal obstruction, says: "Few maladies present so striking a contrast as this between the facility of pathological explanation after death and the obscurity of diagnosis and uncertainty of treatment during life." While I fully appreciated the weight of the foregoing statement I had planned a line of treatment for the success of which I was enthusiastically hopeful.

In acute intestinal obstruction it is apparent that the occlusion occurs through the exertion of power directed downward and outward due to the peristaltic writhing of the intestines and Nature's effort toward the expulsion of some portion of the intestinal contents—*ergo*, if a complete reversal of such action can be secured the greatest promise of an undoing of the occlusion is given; hence to secure such result the first step would naturally be to invert the patient, and second, to force a fluid from the rectum through to the stomach. It seems reasonable that hot water would prove to be the best available agent, the heat thereof assisting to induce the relaxation desired. Now as we have premised that the occlusion occurs through the application of some degree of force from above, and one in which I believe the generation of intestinal gases plays an important part, the next indication is to apply a greater force from below, and this may be secured by thoroughly distending the intestines below the constricted point, coupled with forcible bi-manual manipulations of the abdomen. To retard or stop the natural peristalsis the pressure must be constant instead of intermitting, so as to temporarily

*Philadelphia, 1874, page 234.

paralyze the natural muscular action, and in order that these steps may be taken without the resistance of the patient an anesthetic must be given, which incidentally tends to further induce intestinal inactivity.

Keetley, † in his excellent brochure entitled an Index of Surgery, recommends such line of treatment as follows: First anesthetize, next invert, then give enema while inverted, and lastly do taxis by forcibly kneading the abdomen. He gives no hint

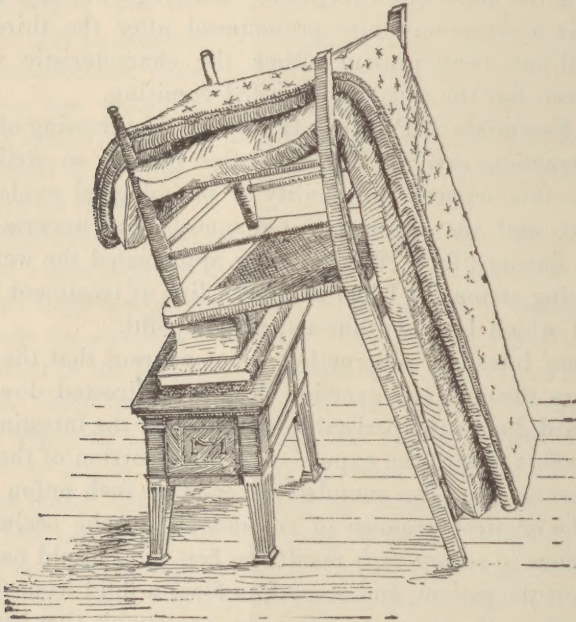


FIG. 1.

as to either the temperature or quantity of enema to be employed. I decided to elaborate upon this suggested line of treatment by having the water as hot as could be safely used and by letting the quantity be gauged entirely by the patient's capacity. I furthermore appreciated the necessity of using a syringe tip capable of preventing the escape of water after it had entered the bowel.

In order to suspend the patient in an inverted position I hastily extemporized a support as follows: In the center of the room I inverted a high-back dining-room chair so the top of the

† New York, 1882, page 150.

back rested upon the floor, and under the front edge of the seat I placed a bootblack stand, with some large books thereupon, which made a support of a sufficient height to permit the back of the chair to slope at an angle of about 75° . I have since thought a piano stool would have been even better. I next placed over the chair a bed bolster and covered this with an old quilt folded about six times lengthwise. The patient was quickly anesthetized with chloroform, which for several reasons was in this case the preferable anesthetic, and was then suspended over the chair, face downward, with her head near the floor and her thighs well secured between the legs of the inverted chair. The condition of anesthesia was kept up during the entire procedure. A fountain syringe was then filled with water heated to about 110° F., and the bag was hung up as high as the ceiling of the

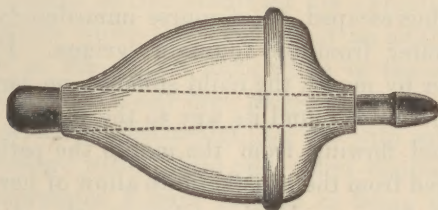


FIG. 2.

room would allow, the room being on the second floor of a two-story house, and hence it was not possible to further increase the fall of the water. Had the operation been done on the lower floor the syringe-bag, by lengthening of the tube, could have been carried gradually up stairs until all the pressure wished for was secured. I decided that by forcible abdominal massage I could get the equivalent of at least double the five feet of fall with which I had to be contented. A trouble anticipated was the great tendency the water has to escape from the anus as soon as the colon is partially filled. In this case I found the sphincter so much relaxed that it would allow the entrance through it of a tip one and three eighths inches in diameter. I next tried a soft rubber bulb nozzle one and three fourths inches in diameter, surrounding an ordinary hard rubber rectal tip, and this I found served as an efficient cork to prevent the escape of water and would perfectly retain the same.

Another trifling feature, though of importance, is that I had materially enlarged the opening through the hard rubber tip so the passage of water would be more rapid. Whenever the water displayed a great tendency to escape, indicating that the rectum and colon were filled, I had the flow stopped by compressing the tube, and while the tip was being firmly pressed against the anus practiced abdominal massage until the expulsive spasms ceased. In this way I alternated the flow of water and forcible kneading of the abdomen for about half an hour, meantime forcing into the bowels between two and two and one half gallons of the heated water. At times the flow of water ceased with the slight fall I was using, owing to the resistance from intestinal distension, though massage each time caused it to again move.

My efforts were suddenly crowned with success by a violent gushing of water from the patient's mouth until somewhere near a gallon thus escaped. I of course immediately stopped further flow of water from the fountain syringe. From this discharge of water by mouth the child suffered no harm whatever, and none of the water found its way to the lungs. By the time the water ceased flowing from the mouth the patient had sufficiently recovered from the anesthetic to allow of her being placed right side up and upon a slop-jar, when another gallon of water escaped in the proper direction. The child was then put to bed, and while somewhat exhausted looked but little the worse for wear. The water which escaped by mouth was not much discolored, and the last gallon which was passed by rectum contained but little fecal matter.

I called two days thereafter and found the patient up and about. The mother advised me that she had been sleeping well and was eating her meals as usual, and had just had her first normal stool. While the patient herself was somewhat coy and retiring, I succeeded in extracting from her a promise to never again indulge in such a heterogeneous diet.

Since my treatment of this case I have found two papers bearing upon the subject worthy of particular mention. In a paper entitled *Intestinal Obstructions*, the late Dr. Robert Battey † asks why water in the living subject can not be forced through the intestinal tract until it escapes at the mouth? In one case

† Atlanta Med. and Surg. Jour., June, 1874, page 129.

wherein he injected from eighteen to twenty pints of soapy fluid, the patient claimed to be able to taste the soap. In another case free vomiting of discolored fluid occurred. In experiment upon the cadaver water was easily forced through the bowels until it flowed from the mouth. His belief was that two and a half or three gallons could with safety be used, but he cautions that no air be allowed to enter therewith, as air or gases cause colic. He also deprecates the use of any kind of colonic tube, wisely reasoning that water will best find its way unaided. In all cases of intestinal obstruction he urges the persistent use of distensile enemata of from ten to twenty or more pints of water. His custom was to give these injections with the patient in the recumbent posture.

W. E. Forrest, in a paper upon Intussusception and the Use of Injections, states as the result of his experiments that the maximum pressure which the intestines of an adult will stand is fifteen pounds to the square inch, while in the case of a small child the maximum is about nine pounds. Hence in practice, in a recent case of bowel obstruction, we can with safety use about six pounds pressure with a child and about double that with an adult. He deprecates a bulb syringe as being dangerous and recommends the use of a fountain syringe with a tube of sufficient length so that by having the bag carried up the stairs the pressure required can be readily secured. Each two and one half feet of rise increases the pressure one pound, hence a fifteen-foot fall gives a six-pound pressure, and so on as the height of the reservoir is increased. He particularly insists upon the importance of maintaining a continuous pressure, as an intermitting stream tends to aggravate the trouble.

The conclusions to be deducted from a study of the case here reported, and a digest of the literature pertaining to conditions of acute bowel obstruction, are:

That copious enemata promptly and persistently employed are indicated in the early stages of acute intestinal obstruction.

That the patient must be anesthetized and suspended in a position of inversion.

That the water should be as hot as can be safely used, and there should be available no less than three gallons.

That a rectal tip must be used which will positively control the escape of water from the rectum, and that no long colonic tube is required.

That no air must be allowed to enter the gut, and the water pressure must be constant and not intermitting; meaning by that a disapproval of the earlier method of alternately filling the gut so far as possible and then allowing it to empty itself.

That while the pressure must not be allowed to weaken, the onward flow of water can be made to alternate with forcible abdominal massage.

That the fall of water may be varied from fifteen to thirty feet, according to the age of the patient and the stage of the trouble, providing a lesser fall of say six feet in alternation with massage is not successful.

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